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A creed which, universally and consistently lived up to, involves the voluntary extermination of the human race, leaving our fair dwelling-place one vast arena of murderous brute-passions, and which, lived up to only by the better part of mankind, would lead to degradation of social existence—such a creed is not the one fostered by science. Nowise is the legitimate outcome of modern science Pantheism.

IS MODERN SCIENCE PANTHEISTIC?¹

BY G. H. HOWISON.

In turning over the foregoing question for several months, I have become more and more impressed with the conviction that any satisfactory answer to it depends upon a clear apprehension of the meaning of its terms. What *is* pantheism? And what features are there in modern science that can give color to the supposition that pantheism is its proper result? Or, if such a supposition is well founded, why should the result be regarded as undesirable? If science establishes, or clearly tends to establish, the pantheistic view of the universe, why should this awaken alarm? What hostility to the vital interests of human nature can there be in such a view? Can there be a possible antagonism between the truth and the real interests of man?

The question before us probably does not convey to most minds the depth and intensity of interest which is so manifestly conveyed by the question of Immortality recently discussed—at least not on its surface. Yet a consideration of it in the detail of the subsidiary questions that have just been mentioned will not only secure the clearness requisite to an intelligent answer, but will bring the real depth of its interest into view, and will show this to be no less profound, while it is far more comprehensive than that of the former problem. It is for this reason that I venture to offer the reflections that have passed in my own mind in the endeavor to clear up the detailed questions that the general problem involves.

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In the hope of contributing something toward that definite apprehension of its bearings which is indispensable to any real and permanent effect of its discussion, I will proceed to consider those questions in their proper succession.

I. WHAT PANTHEISM IS.

Of the several questions that I have specified, perhaps none is surrounded with such vagueness and obscurity as the first—What *is* pantheism? The generally recognized defenders of religion, the theologians who speak with the hoary authority and with the weight of presumptive evidence that the traditional and, indeed, historic bodies of organized and instituted religion naturally impart, are in the habit of drawing a sharp *verbal* distinction between theism and pantheism, as they also do between theism and deism; but when the independent and unbiased thinker, anxious for clearness and precision, inquires after the *real* distinction intended by these names, he hardly finds it in any sense that awakened thought will recognize as at once intelligible and reasonable. We constantly hear that theism is contradicted by both deism and pantheism; by the one through its assertion of the divine personality at the expense of the divine revelation and providence; by the other through its assertion of the divine omnipresence at the expense of the separateness of the divine personality from the world. We hear constantly, too, that theism, to be such, must teach that there is a being who is *truly* God, or that the First Principle of the universe is a HOLY PERSON, who has revealed his nature and his will to his intelligent creatures, and who superintends their lives and destinies with an incessant providence that aims, by an all-pervading interference in the events of the world, to secure their obedience to his will as the sole sufficient condition of their blessedness. All this, however, is but an abstract and very vague formula, after all. Of the *quomodo* for reconciling the contradiction whose extremes are represented by the deism and the pantheism which it condemns it has nothing to say. *How* the divine personality is to be thought so as to comport with the divine omnipresence, or *how* the omnipresent providence of God is to be reconciled with his distinctness from the world, the general proclamation of orthodox theism has no power to show. And, when we pass from the general formula to the desired details, we are too

often then made aware that the professedly theistic doctrine is hampered up with a mass of particulars which are, in truth, profoundly at variance with its own principle; that confusion or contradiction reigns where clearness ought to be; that merely anthropomorphic and mechanical conceptions usurp the place of the required divine and spiritual realities. We discover, for instance, that, in the mechanical interpretation of theism, every doctrine is construed as deism that refuses its assent to a discontinuous and special providence, or to an inconstant, limited, and contra-natural revelation; and that, on the other hand, every theory is condemned as pantheism that denies the separation of God from the world, and asserts instead his omnipresent immanence in it. And we even find that, in the hands of such interpreters, theism is identified with the belief in mechanical and artificial theories of the *quomodo* of atonement, or, as such writers are fond of calling it, of "the plan of salvation." Into the rightful place of the sublime fact of the all-pervading providence and all-transforming grace that makes eternally for righteousness are set hypothetical explanatory schemes of expiation by sacrifice, of appeal by the suffering of the innocent, of ransom by blood, of federal covenant and imputation, of salvation by faith alone; and the theories of the divine nature and administration which omit these details, or refuse to take them literally, are stamped as deism or as pantheism, even though the omission or refusal be dictated by a perception of the incompatibility of the rejected schemes with the fundamental principles of ethics, and, therefore, with the very nature of divine revelation. And thus, in the end, by mere confusion of thought and by inability to rise above conceptions couched in the limited forms of space and of time, the original theistic formula—which, in its abstract setting off of theism against deism and pantheism, is quite unobjectionable, and indeed, so far as it goes, entirely correct—is brought into contradiction with its own essential idea.

Still, it must never be forgotten that these ill-grounded efforts at the completer definition of theism are made in behalf of a real distinction. We shall not fail to find it true, I think, that there *is* a view of the world for which deism may be a very proper name, and another view which may most appropriately be called pantheism; that these are radically distinct from theism, defined

as the doctrine of a personal Creator who reveals himself by omnipresent immanence in the world, to the end of transforming it, through the agencies of moral freedom, into his own image, and of establishing a realm of self-determining persons, who freely and immortally do his will. Nor, as I believe, shall we fail to find that the doctrines named deism and pantheism are *historic* doctrines; that they are not merely conceivable abstractions, but have been advocated by actual men, of a very real persuasion and a very discernible influence. Nor can I doubt that these two doctrines, in their deviations from the theistic theory, will be recognized by our sound judgment as *defects*, and consequently be reckoned as injurious opinions. Only it must be understood that the sole ground of this judgment is to be our untrammelled rational conviction; and that if we were to find this conviction on the side of deism or of pantheism, we ought none of us to hesitate to take the one or the other as the sounder and more commendable view.

In asking, now, what pantheism exactly is, we may avail ourselves of a useful clue, for a beginning, in the apparent meaning of the name itself. The derivation of this from the two Greek words *pan*, all, and *theos*, God, would seem to make it mean either (1) that the All is God, or else (2) that God is all—that God alone really exists. The name, then, hints at two very distinct doctrines: it signifies either (1) that the mere total of particular existences is God; in other words, that the universe, as we commonly call it, is itself the only absolute and real being; or (2) that God, the absolute Being, is the only real being—all finite existence is merely his transitory form of appearance, and is thus, in truth, illusion. We might convey the one or the other of these diverse doctrines by the name, according as we should pronounce it *pantheism* or *pan-theism*. In either way, the word may be made to cover an absolute identification of God and the universe. In the former way, God is merged in the universe; in the latter, the universe is merged in God.

And, in fact, pantheism, as an historic theory, has actually presented itself in these two forms. The doctrine has come forward in a considerable variety of expressions or schemes of exposition, such as those of Heraclitus, Parmenides, and the Stoics, in ancient times, not to speak of the vast systems lying at the basis of the Hindu religions; or those of Bruno and Vanini, Schelling (in his

early period), Oken, Schopenhauer, and Hartmann, in our modern era. But various as are these schemes, they may all be recognized as falling into one or the other of the two comprehensive forms which we have just seen to be suggested by the common name. These two forms may evidently be styled, respectively, the atheistic and the acosmic form of pantheism, as the one puts the sensible universe in the place of God, and thus annuls his being, while the other annuls the reality of the cosmos, or world of finite existences, by reducing the latter to mere modes of the being of the one and only Universal Substance. Both forms are manifestly open to the criticism visited upon pantheism by the standard defenders of theism—namely, that it contradicts the essence of the divine nature by sacrificing the distinctness of the divine personality to a passion for the divine omnipresence; the sacrifice of the distinctness, at any rate, is obvious, even if the incompatibility of such a loss of distinct being with the true nature of a godhead be not at first so evident; though that this loss *is* incompatible with a real divinity will, I think, presently appear. And both forms of pantheism are, in the last analysis, atheisms; the one obviously, the other implicitly so. The one may be more exactly named a physical or theoretical atheism, as it dispenses with the distinct existence of God in his function of Creator; the other may properly be called a moral or practical atheism, as, in destroying the freedom and the immortality of the individual, it dispenses with God in his function of Redeemer. Under either form, the First Principle is emptied of attributes that are vital to deity: in the first the *entire* proper and distinct being of God disappears; in the second, all those attributes are lost that present God in his adorable characters of justice and love, and in the ultimate terms of his omniscience and omnipotence. Perfect omniscience and omnipotence are only to be realized in the complete control of *free* beings, and the creation in them of the divine image by *moral* instead of physical influences.

II. THE RELATION OF PANTHEISM TO MATERIALISM AND IDEALISM.

It will aid us in a correct apprehension of pantheism if we appreciate its relations to other anti-theistic forms of philosophy, particularly to materialism, and to what is known as subjective idealism. It will become clear that it forms a higher synthesis of

thought than either of these. Its conception of the world may be read out either in materialistic or idealistic terms; and this is true whether we take it in its atheistic or its acosmic form. Yet, on a first inspection, this hardly seems to be the case. On the contrary, one is at first quite inclined to identify its first form with materialism outright, and to recognize in its second form a species of exaggerated spiritualism; and hence to contrast the two forms as the materialistic and the idealistic. Further reflection does not entirely do away with this mistake, for the apparent identity of atheistic pantheism with materialism is very decided; and the only correction in our first judgment that we next feel impelled to make, is to recognize the double character of acosmic pantheism. The one and only Universal Substance, in order to include an exhaustive summary of all the phenomena of experience, must be taken, no doubt, as both extending and being conscious. But is the Universal Substance an extended being that thinks? or is it a thinking being that apprehends itself under a peculiar mode of consciousness called extension? In other words, is the thinking of the one Eternal Substance grounded in and mediated by its extended being? or has its extension existence only in and through its thinking? Which attribute is primary and essential, and makes the other its derivative and function? Under the conception of the sole existence of the Absolute, the question is inevitable, irresistible, and irreducible. It thus becomes plain that, to say nothing of a third hypothesis of the mutually independent parallelism of the two attributes, acosmic pantheism may carry materialism as unquestionably as it carries idealism, though not, indeed, so naturally or coherently. And sharper inquiry at last makes it equally clear that atheistic pantheism will carry idealism as consistently as it carries materialism, if doubtless less naturally. For, although in the sum-total of the particular existences there must be recognized a gradation from such existences as are unconscious up to those that are completely conscious, and although it would be the more natural and obvious view to read the series as a development genetically upward from atoms to minds, still the incomprehensibility of the transit from the unconscious to the conscious cannot fail to suggest the counter-hypothesis, and the whole series may be conceived as originating ideally in the perceptive constitution and experience of the conscious members of

it. There is, however, a marked distinction between the two orders of idealism given, respectively, by the acosmic pantheism and by the atheistic: the former, grounded in the consciousness of the Universal Substance, has naturally a universal and, in so far, an *objective* character; the latter has no warrant except the thought in a particular consciousness, and no valid means of raising this warrant even into a common or general character, much less into universality; it is accordingly particular and *subjective*. Pantheism, then, in both its forms, is not only a more comprehensive view of the world than either materialism or any one-sided idealism, whether abstractly universal or only subjective, inasmuch as it makes either of them possible; but it is also a deeper and more organic view, because it does bring in, at least in a symbolic fashion, the notion of a universal in some vague sense or other. This advantage, however, it does not secure with any fulness except in the acosmic form. Indeed, the atheistic form is so closely akin to the less organic theories of materialism and subjective idealism that we may almost say we do not come to pantheism proper until we pass out of the atheistic sort and find ourselves in the acosmic. An additional gain afforded by pantheism, and eminently by acosmic pantheism, is the conception of the intimate union of the First Principle with the world of particular phenomena; the creative cause is stated as spontaneously manifesting its own nature in the creation; it abides immanently in the latter, and is no longer conceived as separated from it and therefore itself specifically limited in space and in time, as it is conceived in the cruder dualistic and mechanical view of things, with which human efforts at theological theory so naturally begin.

III. THE CONTRAST BETWEEN PANTHEISM AND DEISM.

At this point we strike the eminent merit of pantheism, as contrasted with deism. By the latter name it has been tacitly agreed to designate that falling short of theism which stands counter to pantheism. As the latter is defective by confounding God and the world in an indistinguishable identity, so deism comes short by setting God in an isolated and irreducible separation from the world. Deism thus falls partly under the same condemnation of materiality which a rational judgment pronounces upon sensuous theism, with its physically anthropomorphic conceptions of the

Creator, dwelling in his peculiar quarter of space called Heaven, and its mechanical theory of his communication with the world by way of "miracle" alone—by way, that is, independent, and even subversive, of the ordered process of means and end in nature.¹ But while thus suffering from mechanical limitations in thought, deism must still be allowed its relative merit, too. That merit is the criticism which it makes upon the mechanical method of physically anthropomorphic theism. If, in the interest of distinguishing the Creator from the creation, God is to be thought as capable of existing without a world, and as *separated* from the creation, then, as deism justly says, it is purely arbitrary to declare the separation overcome by means of mechanical miracle. Consistency, and, in so far, rationality, would rather require that the separation be kept up; and the folly of the anthropomorphic dualism is made to display itself in the deistic inference, which it cannot consistently refute, that the divine revelation and providence, without which the practical religion indispensable to the reality of theism cannot have being, are, by the separateness of the divine existence, rendered impossible.

IV. THE PERMANENT INSIGHT CONTAINED IN PANTHEISM.

In approaching, then, the question, Why should pantheism be regarded as a doctrine to avoid? we must be careful not to neglect the fact that it plays a valuable and, indeed, an indispensable part in the formation of a genuine theological theory. It is the transitional thought by which we ascend out of the idolatrous anthropomorphism of sensuous theism into that complete and rational theism which has its central illumination in the realized truth of the divine omnipresence. In the immanence of God in the world it finds the true basis—the rational theory—of the divine perpetual providence; in his indwelling in the creature, as "the Light

¹ I must be understood here as reflecting only upon the popular thaumaturgical conceptions of the supernatural. The genuine doctrine of miracle has, to my mind, a speculative truth at its basis, profound and irrefragable; the truth, namely, that the causal organization of nature—the system of ever-ascending evolution from cause to differing effect—can never be accounted for in terms of the mere sensible antecedents, but requires the omnipresent activity of an immanent but supersensible, transcendent, rationally personal cause; and that the system of nature is therefore a Perpetual Miracle. The natural order flowing from this Miracle is, however, immutable and irreversible, and irreconcilable with the possibility of "miracle" in the vulgar sense.

which lighteth every man that cometh into the world," it finds a like basis and theory for the universal and perpetual divine revelation. Indeed, in this realized and now fully uttered omnipresence of God, and in God's active indwelling in the inmost spirit of man, it lays the rational foundation for the Perpetual Incarnation, the doctrine of the Divine Humanity; and, when Christianity sets the doctrine of the Triune God in the very centre of practical religion, pantheism prepares the way to vindicate it as the genuine interpreter of a rational theism. That the Eternal eternally generates himself in our higher human nature; that this Son of Man is truly and literally the Son of God, and the Son only begotten; that, by the discipline of life in worlds of imperfection, men, and through them the whole creation, ascend by devout faith (or fidelity) toward this Son, and, by his life, immortally unto God in the Holy Spirit—this, the epitome and essence of Christian theism, first becomes apprehended as a rationally natural truth in the insight which pantheism brings with it, that God is not separate from the world but immediately present in it, and that the distinction between the Creator and the creature, between the human soul and its redeeming God, can never be truly stated as a distinction in place and time, as a separation in space and by a period. And it is not until the pantheistic insight has been realized in our minds, whether by name or no it matters not, that we discover clearly that this fundamental religious truth, which none of us, upon reflection, would think of denying, and which in some sense we may rightly say we have always known, is effectually violated by our ordinary anthropomorphic conceptions.

V. THE PERMANENT DEFECT OF PANTHEISM.

But, while this permanent insight of pantheism must be carried up into all genuine theistic thought, it remains also true that it falls seriously short of the theological conception demanded by the highest practical religion. For the possibility of religion as a practical power in human life—the very conception of theism as an operative force in the spirit—depends not merely on the omnipresent existence and work of God, but upon the freedom (that is, the unqualified reality) and the immortality of man. Indeed, if the space permitted, it might clearly be shown, not only that man cannot be properly man apart from freedom, immortality, and

God, but that God cannot be properly God apart from man and man's immortality and freedom; in other words, that the self-existent, free perfection of the Godhead, by virtue of its own nature, demands for its own fulfilment the establishment and the control of a world that is God's own image; the *divine* creation must completely reflect the divine nature, and must therefore be a world of moral freedom, self-regulating and eternal. But this demand of a genuine theism pantheism cannot meet. Its theory, whether in the atheistic or in the acosmic form, lies in the very contradiction of human freedom and immortality. Indeed, we may say, summarily, that the distinction between theism and pantheism, even in the loftiest form of the latter, lies just in this—that theism, in asserting God, asserts human freedom and immortality; but that pantheism, while apparently asserting God to the extreme, denies his moral essence by denying the immortality and the freedom of man.

VI. WHY PANTHEISM IS A DOCTRINE TO BE DEPRECATED.

And now we see why pantheism is at war with the permanent interests of human nature. Those interests are wholly identified with the vindication of freedom and immortal life; and this not on the ground of the mere immediate desire we have for freedom and permanent existence, which would, indeed, be shallow and even unworthy of a rational being, but on the profound and never-to-be-shaken foundation laid by reason in its highest form of conscience. For, when this highest form of reason is thoroughly interpreted, we know that the value of freedom and immortality lies in their indispensableness to our discipline and growth in divine life. To no theory of the world can man, then, give a willing and cordial adhesion, if it strikes at the heart of his individual reality and contradicts those hopes of ceaseless moral growth that alone make life worth living. Not in its statement of the Godhead as the all and in all, taken by itself, but in its necessarily consequent denial of the reality of man—of his freedom and immortal growth in goodness—is it that pantheism betrays its insufficiency to meet the needs of the genuine human heart. It is true, to be sure, that this opposition between the doctrine of the One Sole Reality and our natural longings for permanent existence, or our natural bias in favor of freedom and re-

sponsibility, in itself settles nothing as to the truth or falsity of the doctrine. It might be that the system of nature—it might be that the Author of nature—is not in sympathy or accord with “the bliss for which we sigh.” But so long as human nature is what it is, so long as we remain prepossessed in favor of our freedom and yearn for a life that may put death itself beneath our feet, so long will our nature reluctant, and even revolt, at the prospect of having to accept the pantheistic view; so long shall we inevitably draw back from that vast and shadowy Being who, for us and for our highest hopes, must be verily the Shadow of Death. Nay, we must go farther, and say that, even should the science of external nature prove pantheism true, this would only array the interests of science against the interests of man—the interests that man can never displace from their supreme seat in *his* world, except by abdicating his inmost nature and putting his conscience to an open shame. The pantheistic voice of science would only proclaim a deadlock in the system and substance of truth itself, and herald an implacable conflict between the law of nature and the law written indelibly in the human spirit. The heart on which the vision of a possible moral perfection has once arisen, and in whose recesses the still and solemn voice of duty has resounded with majestic sweetness, can never be reconciled to the decree, though this issue never so authentically from nature, that bids it count responsible freedom an illusion, and surrender existence on that mere threshold of moral development which the bound of our present life affords. Such a defeat of its most sacred hopes the conscience can neither acquiesce in nor tolerate. Nor can it be appeased or deluded by the pretext that annihilation may be devoutly accepted as self-sacrifice in behalf of an infinite “fulness of life” for the universe—a life in which the individual conscience is to have no share. In defence of this pantheistic piety, quoting the patriarch of many tribulations, in his impassioned cry, “Though He slay me, yet will I trust in Him!” is as vain as it is profane. This is only to repeat the fallacious paradox of those grim and obsolete sectarians who held that the test of a state of grace was “willingness to be damned for the glory of God.” The spirit that truly desires righteousness longs with an unerring instinct for immortality as the indispensable condition of entire righteousness, and, when invited to approve its own im-

molation for the furtherance of the divine glory, will righteously answer as a noble matron, applying for admission to the Church, once answered the inquisitorial session of her Calvinistic society: "I am assuredly *not* willing to be damned for the glory of God; were I so, I should not be *here*!"

VII. THE PROFOUND INTEREST OF THE PANTHEISTIC PROBLEM.

This is what makes the question of pantheism, as a possible outcome of science, of such vital concern. Science is thus made to appear as the possible utterer of the doom of our most precious hopes, the quencher of those aspirations which have hitherto been the soul of man's grandest as well as of his sublimest endeavors, the destroyer of those beliefs which are the real foundation of the triumphs of civilization—of all that gives majesty and glory to history. To present universal nature as the ocean in which man and his moral hopes are to be swallowed up is to transform the universe for man into a system of radical and irremediable *evil*, and thus to make genuine religion an impossibility; and not only genuine religion, but also all political union and order, which stands, among the affairs and institutions of this world of sense, as the outcome and the image of the religious vision. Belief in the radical and sovereign goodness of the universe and its Author and Sustainer is the very essence of religious faith and of political fealty. It is impossible that either faith or fealty can continue in minds that have once come to the realizing conviction that the whole of which we form a part, and the originating Principle of that whole, are hostile, or even indifferent, not merely to the permanent existence of man, but to his aspirations after the fulness of moral life. A professed God who either cannot or will not bring to fulfilment the longing after infinite moral growth that has once arisen in his creature, is not, for such a creature, and cannot be, true God at all:

"The wish that of the living whole
No life may fail beyond the grave—
Derives it not from what we have
The likest God within the soul?

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"And he, shall he—

“Man, the last work, who seemed so fair,
Such splendid purpose in his eyes,
Who rolled the psalm to wintry skies,
Who built him fanes of fruitless prayer—

“Who trusted God was love indeed,
And love Creation’s final law,
Though Nature, red in tooth and claw
With ravine, shrieked against his creed—

“Who loved, who suffered countless ills,
Who battled for the True, the Just—
Be blown about the desert dust,
Or sealed within the iron hills?

“No more?—A monster, then, a dream,
A discord! Dragons of the prime,
That tare each other in their slime,
Were mellow music, matched with him!”

It is this profound feeling, which Tennyson has thus so faithfully expressed, that gives to the question before us in these days its anxious import. Let us not fail to realize that pantheism means, not simply the all-pervasive interblending and interpenetration of God and the creation, but the sole reality of God, and the obliteration of freedom, of moral life and of immortality for man.

VIII. WHY SHOULD MODERN SCIENCE GIVE ALARM OF PANTHEISM?

It is urgent, then, to inquire if there is anything in the nature of modern science that really gives color to the pantheistic view. It is obvious enough that there are not wanting philosophers, or even schools of philosophy, who read pantheism in science as science appears to them. But the real question is: Is such a reading the authentic account of the teachings of science itself? Here we must not mistake the utterances of men of science for the unadulterated teachings of science; for, on this borderland of science and philosophy, it need not be surprising if men familiar with only that method of investigation which science pursues, and not at home in the complex and varied history of philosophical speculation, should sometimes, or even often, be inclined to a hasty in-

ference when the borderland is reached, and, overlooking the fact that their science and its method have necessary limits, take that view in philosophy which the illegitimate extension of their method would indicate. Disregarding, then, the mere opinions of certain cultivators of science, we are here to ask the director, more searching and more pertinent question, What is there—if, indeed, there be anything—in the nature of science itself, as science is now known—what are the elements in it and in its method, that might be taken to point toward a pantheistic interpretation of the universe and its Source?

And to this it must in all candor be answered that, both in the method of modern science and in the two commanding principles that have legitimately resulted from that method, there is that which unquestionably *suggests* the pantheistic view. Nothing less than the most cautious discrimination, founded on a precise and comprehensive knowledge of the course of philosophical inquiry, can detect the exact reach, the limits, and the real significance of this suggestion, or expose the illegitimacy of following it without reserve. The trait to which I am now referring in the *method* of science is its rigorously experimental and observational character; indeed, its strictly empirical or tentative character. And the two commanding *results*, which now in turn play an organizing part in the subsidiary method of all the sciences, are (1) the principle of the conservation of energy, and (2) the principle of evolution manifesting itself in the concomitant phenomenon of natural selection—the struggle of each species with its environment for existence, and the survival of the fittest. The apparent implications of this method and of these two principles accordingly deserve, and must receive, our most careful present attention.

How, then, does the experimental, or, more accurately, the empirical, method of science suggest the doctrine of pantheism? By limiting our serious belief to the evidence of experience—exclusively to the evidence of the senses. The method of science demands that nothing shall receive the high credence accorded to science, except it is attested by the evidence of unquestionable presentation in sensible experience. All the refinements of scientific method—the cautions of repeated observation, the probing subtleties of experiment, the niceties in the use of instruments of precision, the principle of reduction to mean or average, the allow-

ance for the "personal equation," the final casting out of the largest mean of possible errors in experiment or observation, by such methods, for instance, as that of least squares—all these refinements are for the single purpose of making it certain that our basis of evidence shall be confined to what has actually been present in the world of sense; we are to know beyond question that such and such conjunctions of events have *actually* been present to the senses, and precisely *what* it is that thus remains indisputable fact of sense, after all possible additions or misconstructions of our mere thought or imagination have been cancelled out. Such conjunctions in unquestionable sense-experience, isolated and purified from foreign admixture by carefully contrived experiment, we are then to raise by generalization into a tentative expectation of their continued recurrence in the future—*tentative* expectation, we say, because the rigor of the empirical method warns us that the act of generalization is a step beyond the evidence of experience, and must not be reckoned any part of science, except as it continues to be verified in subsequent experience of the particular event. Thus natural science climbs its slow and cautious way along the path of what it calls the laws of nature; but it gives this name only in the sense that there has been a constancy in the conjunctions of past experience, a verification of the tentative generalization suggested by this, and a consequent continuance of the same tentative expectancy, which, however, waits for renewed verification, and refrains from committing itself unreservedly to the absolute invariability of the law to which it refers. Unconditional universality, not to say necessity, of its ascertained conjunctions, natural science neither claims nor admits.

Now, to a science which thus accepts the testimony of experience with this undoubting and instinctive confidence that never stops to inquire what the real grounds of the possibility of experience itself may be, or whence experience can possibly derive this infallibility of evidence, but assumes, on the contrary, that the latter is underived and immediate—to such a science it must seem that we have, and can have, no verifiable assurance of any existence but the Whole—the mere aggregate of sense-presented particulars hitherto actual or yet to become so. Thus the very method of natural science tends to obliterate the feeling of the transcendent, or at least to destroy its credit at the bar of disciplined judg-

ment, and in this way to bring the votary of natural investigation to regard the Sum of Things as the only reality.

On this view, the outcome of the scientific method might seem to be restricted to that form of pantheism which I have named the atheistic. Most obviously, the inference would be to materialism, the lowest and most natural form of such pantheism; yet subtler reasoning, recognizing that in the last resort experience must be consciousness, sees, in the subjective idealism which states the Sum of Things as the aggregate of the perceptions of its conscious members, the truer fulfilment of the method that presupposes the sole and immediate validity of experience. But beyond even this juster idealistic construction of atheistic pantheism—beyond *either* form of atheistic pantheism, in fact—the mere method of natural science would appear to involve consequences which, even granting the legitimacy of belief in the transcendent, would render the transcendent God the sole reality—that is, would bring us to acosmic pantheism. For the empirical method, so far from vindicating either the freedom of the personal will or the immortality of the soul, withholds belief from both, as elements that can never come within the bounds of possible experience; so that the habit of regarding nothing but the empirically attested as part of science dismisses these two essential conditions of man's reality beyond the pale of true knowledge, and into the discredited limbo of unsupported assumptions.

It is, however, not until we pass from the bare method of natural science to its two great modern consequences, and take in their revolutionary effect as subsidiaries of method in every field of natural inquiry, that we feel the full force of the pantheistic strain which pulls with such a tension in many modern scientific minds. It is in the principle of the conservation of energy, and in that of evolution, particularly as viewed under its aspect of natural selection, that we encounter the full force of the pantheistic drift. And it seems, at the first encounter, irresistible. That all the changes in the universe of objective experience are resolvable into motions, either molar or molecular; that, in spite of the incalculable variety of these changes of motion, the sum-total of movement and the average direction of the motions is constant and unchangeable; that an unvarying correlation of all the various modes of motion exists, so that each is convertible into its correlate at a constant

numerical rate, and so that each, having passed the entire circuit of correlated forms, returns again into its own form undiminished in amount: all this seems to point unmistakably to a primal energy—a ground-form of moving activity—one and unchangeable in itself, immanent in but not transcendent of its sum of correlated forms, while each instance of each form is only a transient and evanescent mode of the single reality. Nor, apparently, is this inference weakened by the later scholium upon the principle of the conservation of energy, known as the principle of the dissipation of energy. On the contrary, the pantheistic significance of the former principle seems to be greatly deepened by this. Instead of a constant whole of moving activity, exhibited in a system of correlated modes of motion, we now have a vaster correlation between the sum of actual energies and a vague but prodigious mass of potential energy—the “waste-heap,” as the physicist Balfour Stewart has pertinently named it, of the power of the universe. Into this vast “waste-heap” all the active energies in the world of sense seem to be continually vanishing, and to be destined at last to vanish utterly: we shift, under the light of this principle of dissipation, from a primal energy, immanent, but not transcendent, to one immanent in the sum of correlated actual motions, and also transcendent of them. Very impressive is the view that here arises of a dread Source of Being that engulfs all beings; it is Brahm again, issuing forth through its triad Brahma, Vishnu, and Siva—creation, preservation, and annihilation—to return at last into its own void, gathering with it the sum of all its transitory modes. And let us not forget that the conceptions out of which this image of the One and All is spontaneously formed are the ascertained and settled results of the science of nature in its exactest empirical form.

When to this powerful impression of the principle of conservation, as modified by that of dissipation, we now add the proper effect of the principle of evolution, the pantheistic inference appears to gather an overpowering weight, in no way to be evaded. As registered in the terms of a rigorous empirical method, evolution presents the picture of a cosmic Whole, constituted of varying members descended from its own primitive form by differentiations so slight and gradual as not to suggest difference of origin or distinction in kind, but, on the contrary, to

indicate clearly their kinship and community of origin. Still, these differentiations among the members, and the consequent differences in their adaptation to the Whole, involve a difference in their power to persist amid the mutual competition which their common presence in the Whole implies. In this silent and unconscious competition of tendencies to persist, which is called, by a somewhat exaggerated metaphor, the struggle for existence, the members of the least adaptation to the Whole must perish earliest, and only those of the highest adaptation will finally survive. So, by an exaggeration akin to that of the former metaphor, we may name the resulting persistence of the members most suited to the Whole the survival of the fittest; and as it is the Whole that determines the standard of adaptation, we may also, by figuratively personifying the Whole, call the process of antagonistic interaction through which the survivors persist a process of natural selection. Here, now, the points of determinative import for inference are these: that the "survival" is only of the *fittest to the Whole*; that it is the Whole alone that "selects"; that no "survival," as verified to the strictly empirical method, can be taken as permanent, but that even the latest must be reckoned as certified only to date, with a reservation, at best, of "tentative expectancy" for hope of continuance; that "natural selection," *as empirically verified*, is a process of cancellation, a selection only to death; and that the Whole alone has the possibility of final survival. The "tentative expectation" founded on the entire sweep of the observed facts, and not extended beyond it, would be that the latest observed survivor, man, is destined, like his predecessors, to pass away, supplanted by some new variation of the Whole, of a higher fitness to it. And so on, endlessly.

This clear pointing, by an empirically established and empirically construed doctrine of evolution, toward the One-and-All that swallows all, seems to gain further clearness still when the principles of conservation and of evolution are considered, as they must be, in their inseparable connection. They work in and through each other. Conservation and correlation of energy, and their "rider" of dissipation, are in the secret of the mechanism of the process of natural selection, with its deaths and its survivals; evolution is the field, and its resulting forms of existence, more and more complex, are the outcome of the operations of the cor-

related, conserved, and dissipated energies; and, in its principle of struggle and survival, evolution works in its turn in the very process of the correlation, dissipation, and conservation of energy. It therefore seems but natural to identify the potential energy—the “waste-heap” of power—of correlation with the Whole of natural selection. And thus we appear to reach, by a cumulative argument, the One and Only in which all shall be absorbed.

If we now add to these several indications, both of the method and of the two organic results of modern science, the further weighty discredit that the principles of conservation and evolution appear to cast upon the belief in freedom and immortality, the pantheistic tone in modern science will sound out to the full. This discredit comes, for human free-agency, from the closer nexus that the correlation of forces seems plainly to establish between every possible human action and the antecedent or environing chain of events in nature out of which the web of its motives must be woven; and from the pitch and proclivity that must be transmitted, according to the principle of evolution, by the heredity inseparable from the process of descent. For immortality, the discredit comes, by way of the principle of evolution, through its indication, under the restrictions of the empirical method, of the transitoriness of all survivals, and through its necessary failure to supply any evidence whatever of even a *possible* survival beyond the sensible world, with which empirical evolution has alone to do; while, by way of the principle of the conservation and dissipation of energy, the discredit comes from the doom that manifestly seems to await all forms of actual energy, taken in connection with the general discredit of everything unattested by the senses, which the persistent culture of empiricism begets.

In short, while the empirical method ignores, and must ignore, any supersensible principle of existence whatever, thus tending to the identification of the Absolute with the Sum of Things, evolution and the principle of conservation have familiarized the modern mind with the continuity, the unity, and the uniformity of nature in an overwhelming degree. In the absence of the conviction, upon independent grounds, that the Principle of existence is personal and rational, the sciences of nature can hardly fail, even upon a somewhat considerate and scrutinizing view, to convey the impression that the Source of things is a vast and shadowy

Whole, which sweeps onward to an unknown destination, "regardless," as one of the leaders of modern science has said, "of consequences," and unconcerned as to the fate of man's world of effort and hope, apparently so circumscribed and insignificant in comparison.

IX. MODERN SCIENCE IS, STRICTLY, NON-PANTHEISTIC.

But now that we come to the closer question, whether this impression is really warranted, we stand in need of exact discrimination. With such discrimination we shall find that, decided as the inference to pantheism from the methods and principles just discussed seems to be, it is, after all, illegitimate.

Our first caution here must be to remember that it is not science in its entire compass that is concerned in the question we are discussing. It is only "modern science," popularly so called—that is, science taken to mean only the science of nature; and not only so, but further restricted to signify only what may fitly enough be described as the *natural* science of nature; that is, so much of the possible knowledge of nature as can be reached through the channels of the senses; so much, in short, as will yield itself to a method strictly observational and empirical.

Hence, the real question is, whether empirical science, confined to nature as its proper object, can legitimately assert the theory of pantheism. And with regard now, first, to the argument drawn with such apparent force from the mere method of natural science, it should be plain to a more scrutinizing reflection that shifting from the legitimate *disregard* of a supersensible principle, which is the right of the empirical method, to the deliberate assumption that there *is* no such principle, because there is and can be no sensible evidence of it, is an abuse of the method in question—an unwarrantable extension of its province to decisions lying by its own terms beyond its ken. This shifting is made upon the assumption that there can be no science founded on any other than empirical evidence. That there is, and can be, no science deserving the name, except that which follows the empirical method of mere *natural* science, is a claim which men of science are prone to make, but which the profoundest thinkers the world has known—such minds as Plato, or Aristotle, or Hegel—have certainly pronounced a claim unfounded, and, indeed, a sheer assump-

tion, contradicted by evidence the clearest, if oftentimes abstruse. When, instead of blindly following experience, we raise the question of the real nature and the sources of experience itself, and push it in earnest, it then appears that the very possibility of the experience that seems so rigorously to exclude supersensible principles, and particularly the rational personality of the First Principle, is itself dependent for its existence on such Principle and principles; that, in fact, these enter intellectually into its very constitution. But, in any case, this question of the nature of experience, of the limits of possible knowledge, and whether these last are identical with the limits of possible experience, is one in the taking up of which we abandon the field of nature and enter the very different field of the theory of cognition. In this, the pursuer of natural science, as such, has not a word to say. Here his method is altogether insufficient and unavailing; if the problem can be solved at all, it can only be by methods that transcend the bounds of merely empirical evidence.

So, again, in the inferences to pantheism from the conservation of energy and the principle of evolution. Strong as the evidence seems, it arises in both cases from violating the strict principles of the natural scientific method. All inferences to a whole of potential energy, or to a whole determinant of the survivals in a struggle for existence, are *really* inferences—passings beyond the region of the experimental and sensible *facts* into the empirically unknown, empirically unattested, empirically unwarranted region of supersensible *principles*. The exact scientific truth about all such inferences, and the supposed realities which they establish, is, that they are unwarranted by natural science; and that this refusal of warrant is only the expression by natural science of its incompetency to enter upon such questions.

Natural science may therefore be said to be silent on this question of pantheism; as indeed it is, and from the nature of the case must be, upon all theories of the supersensible whatever—whether theistic, deistic, or atheistic. Natural science has no proper concern with them. Science may well enough be said to be *non*-pantheistic, but so also is it non-theistic, non-deistic, non-atheistic. Its position, however, is not for that reason anti-pantheistic any more than it is anti-theistic, or anti-deistic, or anti-atheistic. It is rather *agnostic*, in the sense, that is, of declining to affect knowl-

edge in the premises, because these are beyond its method and province. In short, its agnosticism is simply its *neutrality*; and does not in the least imply that agnosticism is the final view of things. The investigation of the final view, the search for the First Principle, science leaves to methods far other than her own of docile sense-experience—methods that philosophy is now prepared to vindicate as higher and far more trustworthy. Yet, when once the supersensible Principle is reached in some other way—the way of philosophy, as distinguished from that of natural science—science will then furnish the most abundant confirmations, the strongest corroborations; the more abundant and the stronger in proportion as the First Principle presented by philosophy ascends, evolution-wise, from materialism, through pantheism, to rational theism. For science *accords* most perfectly with the latter, although she is, in herself, wholly unable to attain the vision of it. But it must be a theism that subsumes into its conceptions of God and man all the irrefutable insights of materialism, of deism, and, eminently, of pantheism; of which, as I will hope this paper has shown, there are those of the greatest pertinence and reality, if also of the most undeniable insufficiency.

THE FACTS ABOUT EXTERNAL PERCEPTION.

BY PAYTON SPENCE.

Everybody admits the existence of the external world; but philosophers differ in opinion as to what that thing is which they, in common with everybody else, call the external world. People in general, when they speak of the external world, mean something outside of and separate and apart from themselves. The Idealist believes that the external world is simply our sensations, which somehow become external perceptions, still remaining sensations, however; and that, therefore, the outness and otherness of things is apparent, not real. The Realist believes that our sensations are one thing, while the external world is quite another thing, having an existence of its own outside of the mind, separate and apart from our sensations, existing though sensation had never come